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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/989,876	11/21/2001	Roland Soulabail	1-12-7-2-3	1491

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Docket Administrator (Room 3J-219)
Lucent Technologies Inc.
101 Crawfords Corner Road
Holmdel, NJ 07733-3030

EXAMINER	
KHOO, FOONG LIN	
ART UNIT	**PAPER NUMBER**
2664	

DATE MAILED: 07/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

Office Action Summary	Application No.	Applicant(s)	
	09/989,876	SOULABAIL ET AL.	
	Examiner	Art Unit	
	F. Lin Khoo	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/21/2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7,8,10-13,15 and 16* is/are rejected.

7)☐ Claim(s) *6, 9, 14, 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/21/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The rectangular boxes in Fig. 7 do not have any description inside them. They should show labeled representation or the feature(s) described in the specification. No new matter should be entered. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: On page 10, line 1, software element 74 is referred to in Fig. 7 as element 72.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation of "specified in an existing telecommunications standard" as stated in the claims does not indicate which version and date of the existing telecommunication standard the applicant is referring to. Applicant is required to specify exactly the reference to provide clarification to the claimed invention.

Claim Objections

5. Regarding claims 1, 2 and 10 the phrase "characterised" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 4, 5, 7, 8, 10, 12, 13, 15 and 16 are rejected under 35 U.S.C. 102(b) as being unpatentable by Federkins et al. (U.S. Patent No. 5,959,982)..

Regarding Claims 1 and 10, Federkins et al. discloses a TDD wireless system (cellular telecommunications time division system) (Fig. 1), wherein a base station (main station) for a cell provides a defined frame structure (Fig. 2A), wherein each frame comprises of fixed duration of transmit and receive portions in each time slice (frame period – refer to col 7, line 1) (comprises a plurality of timeslots), each timeslot having at the end a guard period (Fig. 2A, element 32 or 34, col 5, lines 55-56), the main station having means for transmitting data bursts within each time slot (Fig. 2A and Fig. 3 elements 81 and 63) and means for transmitting timing deviation signals to Customer Premises Equipment (CPE) (subsidiary stations) within the cell (Fig. 4, step 99), each subsidiary station within the cell of the main station having means for adjusting its timing to received timing deviation signals , for adjusting the timing of uplink transmission bursts (Fig 4, step 99, col 10, lines 2-5), characterised in that:
the guard period at the main station for a downlink (base transmit) slot followed by an adjacent uplink (base receive) slot is longer (Fig. 2C, element 45) than a guard period

for an uplink slot followed by an adjacent downlink slot (Fig. 2C shows no guard period between Base Receive portion and Base Transmit portion) whereby the cell size may be extended.

Regarding Claim 2, Federkins et al. discloses an apparatus for a cellular telecommunications time division system, including a main station for a cell including means providing a defined frame structure, wherein each frame comprises a plurality of timeslots, each timeslot having at the end a guard period (Fig. 3 element 79, col 9 line 1), the main station including means for transmitting data bursts within a time slot (col 4, lines 45-48, Fig. 3, elements 81 and 63, col 8, lines 59-60), and means for transmitting timing deviation signals to subsidiary stations within the cell (Fig. 3, elements 81, 63, 73, col 9, lines 3-4), at least one subsidiary station within the cell of the main station having means for adjusting its timing to received timing deviation signals, for adjusting the timing of uplink transmission bursts (Fig. 3 , elements 73 and 67, col 9, lines 11-16 and Fig. 4, step 99, col 10, lines 2-5) characterized in that said means providing a defined frame structure is arranged to provide a guard period (Fig. 4, step 97 and Fig 3, element 67, col 9, lines 64-67 and col 10, lines 1-2) at the main station for a downlink slot followed by an adjacent uplink slot which is longer (Fig. 2C, element 59 (Base Clock Halt signal produced by elements 73 and 71 in Fig. 3, col 9, lines 3-5)) than a guard period for an uplink slot followed by an adjacent downlink slot, whereby the cell size may be extended.

Regarding Claims 4 and 12, Federkins et al, discloses limitations of the base claim and a system wherein the sum of the aforesaid guard periods (Fig. 2B elements 52, 54, 56, 58, col 6, lines 51-57), divided by two, is generally equal to the value of the guard period specified in an existing telecommunications standard. Federkins et al. states that the transmit and receive portions for the base and the CPE have the same time period even though they are offset in time (in col 8, lines 14-16). It is also stated that the total frame period for the base and the remote be the same, and that the transmit and receive portions be of the same time length in such a system for maximum efficiency and bandwidth (col 6, lines 42-44). The time slots for the transmit and receive portions are fixed in time, only the guard period varies within the fixed frame period. Therefore, it is inherent that by summing the guard periods of element 54, 56 and 58, it would be equal to guard period of element 52 and dividing guard period of element 52 by two would produce the value of the guard period in order to maintain the same fixed frame period.

Regarding Claims 5 and 13, Federkins et al. discloses limitations of the base claim and wherein guard period between an uplink slot and a next following downlink slot is a minimal value, determined by practical timing constraints (Fig. 2C shows no guard period between Base Receive and Base Transmit or some minimum value). Federkins et al. states that as a result of propagation delay is that a guard band 54 (Fig. 2B) in the timing frame for the remote unit will be shorter than the guard band in the timing frame of the base station. The width of the guard band in the base station frame

determines the maximum effective range for the system, because as range increases, propagation delay increases proportionally, and the remote guard band has to decrease. Given a fixed guard band for the base frame, at some distance of separation the receive and transmit portions of the remote frame must overlap. This is the maximum effective range for the system (col 6, lines 32-41).

Regarding Claims 7 and 15, Federkins et al. discloses the limitation of the base claim and wherein the subsidiary station includes means to determine the time for transmission of an uplink slot from the timing deviation signal provided by the main station, and the known length of a downlink burst. (col 3, lines 33-39) It is inherent in Federkins et al.'s invention that upon receipt of the timing deviation signal from the main station, it would be possible to calculate the length of the downlink burst which are fixed in duration and based on propagation delay information provide timed guard band periods at the proper point to transmit the uplink slot (Fig. 2C element, 40, 61, 55, 52, col 7 lines 30-39).

Regarding Claims 8 and 16, Federkins et al. discloses the limitation of the base claim and wherein the system is symmetric, a time frame consisting of single downlink slots separated by single uplink slots (Fig. 2C and Fig. 2A, Col 5, lines 60-64).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 3 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Federkins et al. (U.S Patent No. 5,959,982).

Regarding Claims 3 and 11, Federkins et al. discloses limitations of the base claim. Federkins et al. does not disclose that the system is UMTS and the main station is Node B and subsidiary station is a UE. Federkins et al. does provide a Time Division Duplex wireless system (refer to Abstract) and the teachings may be extended to other wireless communication applications such as cellular telephone systems (col 4, lines 25-27). It would have been obvious to one having ordinary skill in the art that a TDD system of Federkins et al. can be adaptable to an UMTS system whereby the base station is Node B, and the Customer Premise Equipment (CPE) is a UE to accommodate the longer range of a wireless system, and other relatively long range systems and stations may be served at many different distances from a base station within a maximum radius.

Allowable Subject Matter

10. Claims 6 and 14, 9 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,778,510 to Kranz et al. describes a digital telecommunication facility in which data is exchange between mobile units and base station in units of two or more TDMA frames.

U.S. Patent No. 6,094,421 to Scott relates to a system and method for time division duplex communication over a single frequency band wherein guard time overhead is reduced by active adjustment of reverse link transmission timing as a function of round trip propagation time.

U.S. Patent No. 6,370,128 to Raitola relates to a method for extending the range of control channels in a cellular radio system comprising, in each cell, at least one base station which is in contact with mobile stations within its area, the base station transmitting at least at one carrier frequency and a signal to be transmitted at each frequency being divided in the system, on a time-division basis, in frames comprising a

plural number of time slots, and the base stations transmitting on the control channels information about themselves to mobile stations.

U.S. Patent No. 6,101,177 to Bodin et al. relates to a TDMA system which offsets the beginnings of the time slots of the uplink transmission relative to the downlink transmission and includes a timing adjustment into the transmissions thereby allowing the mobile stations to be able to operate at a defined distance interval from the base station without a capacity reduction.

The four prior arts cited, however, do not provide all the teachings of the applicant's invention specifically the technique used in varying the guard periods.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to F. Lin Khoo whose telephone number is 571-272-5508. The examiner can normally be reached on flex time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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